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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,396	10/10/2001	Kousei Sano	10873.822US01	1183

7590 07/12/2004

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EXAMINER

HUBER, PAUL W

ART UNIT	PAPER NUMBER
2653	6

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,396

Applicant(s)

SANO ET AL.

Examiner

Paul Huber

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Applicant's election of Group I (claims 1-16) and Species 1 (Figs. 1 & 2), claims 1-8 and 10-16 readable thereon, in the reply filed on June 14, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, it is not understood how the photo detection regions, particularly in the elected Species 1 of figures 1 & 2, "partially overlap with each other" as claimed. All photo detection regions appear to be located adjacent to each other in a non overlapping manner.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 10, 15, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshida (US-6,498,330).

Regarding claims 1, 15, and 16, Yoshida discloses an optical head apparatus (see figure 1), comprising: a light source 1 for emitting light; a converging optical system including a light converging means 5 for converging the light emitted from the light source 1 onto an information storage medium 6; a light dividing means 2 for dividing a returning light reflected by the information storage medium 6 into a first light P3 with a larger amount of light and a second light P1 or P2 with an amount of light smaller than the amount of the first light P3; a first photo detector 7e for receiving the first light P3 and outputting a signal to reproduce information recorded on the information storage

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medium 6 (see col. 6, lines 29-44); and a second photo detector 7a, 7b, 7c, or 7d for receiving the second light P1 or P2 and outputting a signal to detect spherical aberration of light converged on the information storage medium 6 (see col. 7, lines 33-46). Note: since the light region 2c producing first light P3 is larger than either the light regions 2a or 2b respectively producing second light P1 or P2, it is inherent that the first light P3 has a larger amount of light than the second light P1 or P2 as claimed.

Regarding claims 2 & 6-8, the light dividing means 2 divides the second light into light P1 in a first region 2a near the optical axis and light P2 in a second region 2b distant from the optical axis as claimed. The optical head apparatus includes a spherical aberration detecting means for detecting the amount of spherical aberration of light converged on the information storage medium by using at least one of an amount of focus deviation of light in the first region 2a and an amount of focus deviation of light in the second region 2b as claimed. See col. 7, lines 33-46.

Regarding claim 3, the spherical aberration detecting means detects the difference between the amount of focus deviation of light in the first region 2a and the amount of focus deviation of light in the second region as a spherical aberration amount SA as claimed. See col. 7, lines 42-46.

Regarding claim 4, a cross sectional shape of light used for the converging optical system is substantially circular with a first radius, and a first region 2a that is a concentric circle of the substantial circle and has a second radius smaller than the first radius, and a second region 2b that is outside of the first region 2a and inside of the substantial circle with the first radius are provided as claimed.

Regarding claims 5 & 10, "when the focus error signal FES is not kept at 0, the spherical aberration is represented by the following equation in view of the focus error signal FES. $SA = (S3 - S4) - (S1 - S2) \times K$ (K is constant). The spherical aberration signal SA is generated in the control signal generating circuit 20 and is outputted to the solid immersion lens driving circuit 19" (col. 8, lines 42-49). Accordingly, the amount of change in the amount of focus deviation of light in the first region 2a (S1-S2) is equal to that in the amount of focus deviation of light in the second region 2b (S3-S4) when the relative distance between the information storage medium and the light converging means varies as claimed.

Claims 1, 15, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Wals (US-6,399,932).

Wals discloses an optical head apparatus (see figures 1 and 3B), comprising: a light source 6 for emitting light; a converging optical system including a light converging means 11 for converging the light emitted from the light source 6 onto an information storage medium 1; a light dividing means 32 (see figure 3B) for dividing a returning light reflected by the information storage medium 1 into a first light 34 with a larger amount of light and a second light 33 or

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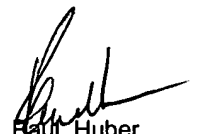
35 with an amount of light smaller than the amount of the first light 34; a first photo detector (not illustrated; see col. 5, lines 17-19) for receiving the first light 34 and outputting a signal to reproduce information recorded on the information storage medium 1; and a second photo detector 36 or 37 for receiving the second light 33 or 35 and outputting a signal to detect spherical aberration of light converged on the information storage medium 1 (see abstract). Note: since the light dividing means 32 is a diffraction optical element "for splitting the incoming beam 18 as diffracted -1^{st} , 0^{th} and $+1^{\text{st}}$ orders into three sub-beams 33, 34 and 35" (col. 5, lines 4-6), it is inherent that the first light 34 has a larger amount of light than the second light 33 or 35 as claimed.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Martynov and Saimi et al. each disclose an aberration detection device for an optical recording/reproducing apparatus.

Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 12-14 are allowed.

Any inquiry concerning this communication should be directed to Paul Huber at telephone number 703-308-1549.


Paul Huber
Primary Examiner
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